9500308

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME: Hiptri Tech HS, a Monsanto Company

Morens, there has been presented to the

Secretary of Agriculture

An application requesting a certificate of protection for an alleged distinct variety of sexually reproduced, or tuber propagated, plant, the name and description of which are contained in the application and exhibits. A copy of which is hereunto annexed and made a part hereof, and the various requirements of LAW in such cases made and provided have been complied with, and the title thereto is, from the records of the Plant Variety Protection Office, in the applicant(s) indicated in the said copy, and WHEREAS, upon due examination made, the said applicant(s) adjudged to be entitled to a certificate of plant variety protection under the LAW.

NOW, therefore, this certificate of plant variety protection is to grant unto the said applicant(s) and the successors, heirs or assigns of the said applicant(s) for the term of twenty years from the date of this grant, subject to the payment of the required fees and periodic replenishment of viable basic seed of the variety in a public repository as provided by LAW, the right to exclude others from selling the variety, or offering it for sale, or reproducing it, or mporting it, or exporting it, or conditioning it for propagation, or stocking it for any of the above goses, or using it in producing a hybrid or different variety therefrom, to the extent provided Plant Variety Protection Act. In the United States seed of this variety (i) shall by variety name only as a class of certified seed and (2) shall conform to the number of the specified by the owner of the rights. (84 stat. 1542, as amended, 7 u.s.c. 2321 et seq.)

WHEAT, COMMON

'Elkhart'

In Tratimonn Marrow, I have hereunto set my hand and caused the seal of the Hunt Univer Tratection Office to be affixed at the City of Washington, D.C. this thirty-first day of July in the year of our Lord one thousand nine hundred and ninety-eight.

Thomas a Salt

Acting Commissioner Plant Variety Protection Office Agricultural Marketing Service

Secretary of Agriculture

MERNOUNCE LOCALLY. Include form number and date on all	reproductions.		EODM ADDROVED OND WO OFFI						
U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE DIVISION - PLANT VARIETY PROTECTION OFF		The following statements are m 1974 (5 U.S.C. 552a).	FORM APPROVED - OMB NO. 0581-00 ade In accordance with the Privacy Act						
APPLICATION FOR PLANT VARIETY PROTECTION [Instructions and information collection burden statements]	CERTIFICATE	Application is required in order certificate is to be issued (7 U.S. until certificate is issued (7 U.S.)	to determine if a plant variety protect C. C. 2421). Information is held confiden C. 2426).						
1. NAME OF APPLICANTIST los it is to appear on the Cortificates HybriTech US, a Monsanto Compa		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME						
Agripro Seeds, Inc. C&M 6/2		90M*7546	ELKHART						
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Count	ryl	6. TELEPHONE finclude area code)	FOR OFFICIAL MOTION						
6700 Antioch P.O. Box 2962	in es	913-384-4940	FOR OFFICIAL USE ONLY PVPT NUMBER () () () ()						
Shawnee Mission, Kansas 66201-1362	·	6. FAX finclude eros code) 913-384-0208	F DATE						
7. GENUS AND SPECIES NAME	8. FAMILY NAME (Botanic	al)	G HUNG AND EXAMINATION FIE						
Triticum aestivum	Gramine	ae							
9. CROP KIND NAME (Common name)			6 DATE						
Soft Red Winter Wheat Wheat, com	noh	,	E						
O. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATI COMPONATION IF INCORPORATED, GIVE STATE OF INCORPORATION	ON (corporation, partnership	r, essociation, etc.) (Common name)	C CENTIFICATION FEE						
Delaware		12. DATE OF INCORPORATION June 1994	G DATE						
3. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE	IN THIS APPLICATION AN	ID RECEIVE ALL PAPERS	14. TELEPHONE (include area code)						
Robert Bruns	Chris	tine Bruns	970-532-3721						
806 N. Second Street		oud, CO 80513	316 755 7707						
P.O. Box 30 Berthoud, Colorado 80513	(Hybr	KJ. Messmer itech US	16. FAX (Include area code) 979-532-2035						
B. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow inst	ructions on reverse A ;	North Meridian	316 75 50072						
a. X Exhibit A. Origin and Breeding History of the Variety b. X Exhibit B. Statement of Distinctness	1 1014		Email:						
c. 🖟 Exhibit C. Objective Description of the Variety	12/98/								
d. Exhibit D. Additional Description of the Variety		<i>7-1</i>	ark. J. Messmer@ Monsanto. Com						
c. X Exhibit E. Statement of the Basis of the Applicant's Ownership			10015anto. Com						
1. X Voucher Sample (2,500 viable untrested seeds or, for tuber propagated v.	arieties verification that tiss:	te culture will be deposited and maintaine	ed to a mobile manufact						
Treasurer of the L	inited States" (Mail to PVPO	y ·	•						
DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VAI	C) NO 11 -10, 20 to 1	LASS OF CERTIFIED SEED? (See Section 1997)	n 83(a) of the Plant Variety Protection Act)?						
DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS GENERATIONS?	TO NUMBER OF 18. IF	"YES" TO ITEM 18, WHICH CLASSES	OF PRODUCTION BEYOND BREEDER SEED?						
☑ YES □ NO		T FOUNDATION REGISTERE	O M CERTIFIED						
HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEAS YES \$11 *yes, * give names of countries and dates! NO	SED, USED, OFFERED FOR S	sale, or marketed in the U.S. or o	THER COUNTRIES?						
The applicant(s) declare that a viable sample of basic seed of the variety will be fur applicable, or for a tuber propagated variety a tissue culture will be deposited in a	hished with application and	will be renteniebed and a							
	(abserted) mile (Hell)fet	and for the duration of the certificate.	÷						
The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tube Section 41, and is entitled to protection under the provisions of Section 42 of the Pl		and believe(s) that the variety is now, dis	tinct, uniform, and stable as required in						
Applicant(s) is lare) informed that false representation herein can jeopardize protection in the protection of the prote									
E (Please print or type)	SIGNATURE C	DF APPLICANT (Owner(s))	i serve de la Timbre de la Companya						
Robert Bruns	NAME (Ploaso	print or type)							
ACITY OR TITLE DATE	CAPACITY OF	TITLE	DATE						
Research Manager 8/30/9	95	*							
470 (04-86) (Previous editions are to be destroyed)		See persons for furnities							
		occurrence for instructions and in	formation collection burden statemen						

EXHIBIT A.

ORIGIN AND BREEDING HISTORY OF ELKHART

The cross between Auburn and GR 855 was made in the 1984 spring greenhouse at Brookston, Indiana. The F1, F2 and F3 populations were grown in the field in 1985, 1986 and 1987, respectively. Fifty-nine selections were made in the F3 and grown for two generations in the 1988 greenhouse using Single Seed Descent. Individual F6 Pre Y1 rows (head rows) were planted in the field at Brookston in 1989. Three selections were advanced and tested at two locations in 1990. The selection that became Elkhart was selected for yield, test weight, maturity and disease resistance. Elkhart has been in advanced testing from 1991 to the present time. It was in the Uniform Eastern Nursery in 1994 under the experimental number ABI 90*7546.

In 1993, 300 headrows were grown in Berthoud, Colorado. Two hundred and eighty-six of these rows were bulked and grown in 1994 in Berthoud, Colorado as a two acre breeder seed increase. This breeder seed increase produced 9,650 pounds of foundation seed.

Elkhart has been uniform and stable since 1993. Less than .8% of the plants were rogued from the breeder seed field in 1994. Approximately 75% of the rogued variant plants were taller height (6 to 18 centimeters) wheat plants, 5% were awnletted wheat plants and 10% were bluer color wheat plants at boot stage. Up to .8% variant plants may be encountered in subsequent generations.

EXHIBIT B.

STATEMENT OF DISTINCTNESS

Elkhart is most similar to the soft red winter wheat Dynasty. However, it can be easily distinguished by the following morphological characteristics:

- Elkhart has a short glume length. Dynasty has a midlong glume length, (see statistical data from 1993 and 1994 on the following pages).
- Elkhart exhibits seedling anthocyanin, as recorded in Berthoud, Colorado for the 1993 and 1994 growing season. Dynasty does not exhibit seedling anthocyanin, Crop Science 29:830-831 (1989).
- Elkhart has an inclined spike at maturity, as recorded in Berthoud, Colorado 1993 and 1994. Dynasty has an upright spike at maturity, Crop Science 29:830-831 (1989).

Agripro Seeds Inc. Statistical Summary

11/20/95

Glume Length (mm)	For year: 1993									
	Elkhart	Dynasty								
Mean	6.312	7.9								
Variance	0.0986	0.091666667								
Observations	25	25								
Pooled Variance	0.095133333	0								
Hypothesized Mean Difference	0	0								
df	48	Ö								
t Stat	-18.20283983	0								
P(T<=t) one-tail	1.73446E-23	0								
t Critical one-tail	1.677224191	0								
P(T<=t) two-tail	3.46892E-23	0								
t Critical two-tail	2.01063358	0								

(1) Steel, R.G.D., and J.H. Torrie. 1960. Comparisons Involving Two Sample Means. p. 86-121. In Principles and Proceedures of statistics. McGraw-Hill Book Co. Inc., New York.

Agripro Seeds Inc. Statistical Summary 11/20/95

Raw Data Summary

Glume Length (mm)

1993

number of	Raw da	ata:
observations:	Elkhart	Dynasty
1	5.9	7
2	5.9	7.4
3	6	7.7
4	6	7.8
5	6	7.8
6	6	7.8
7	6	7.8
-8	6.1	7.9
9	6.1	7.9
. 10	6.1	7.9
11	6.2	7.9
12	6.2	7.9
13	6.2	7.9
14	6.3	7.9
15	6.3	7.9
16	6.4	7.9
17	6.4	7.9
18	6.6	7.9
19	6.6	8
20	6.7	8
21	6.7	8
22	6.7	8
23	6.7	8.1
24	6.8	8.6
25	6.9	8.6

Agripro Seeds Inc. Statistical Summary

11/20/95

t-Test: Two-Sample Assuming I Glume Length (mm)	For year	ır: 1994
	Elkhart	Dynasty
Mean	6.5	7.712
Variance	0.148333333	0.145266667
Observations	25	25
Pooled Variance	0.1468	О
Hypothesized Mean Difference	0	О
df	48	0
t Stat	-11.18393408	0
P(T<=t) one-tail	2.865E-15	0
t Critical one-tail	1.677224191	0
P(T<=t) two-tail	5.72999E-15	0
t Critical two-tail	2.01063358	0

(1) Steel, R.G.D., and J.H. Torrie. 1960. Comparisons Involving Two Sample Means. p. 86-121. In Principles and Proceedures of statistics. McGraw-Hill Book Co. Inc., New York.

Agripro Seeds Inc. Statistical Summary

11/20/95

Raw Data Summary

Glume Length (mm)

1994

number of	Raw da	ata:
observations:	Elkhart	Dynasty
1	5.7	6.9
2	6	7
3	6	, 7.2
4	6.1	7.2
5	6.1	7.3
6	6.1	7.5 7.5
7	6.2	7.6
8	6.2	7.6
9	6.2	7.7
10	6.3	7.8
. 11	6.5	7.8
12	6.5	7.8
13	6.6	7.8
-14	6.6	7.8
15	6.7	7.8
16	6.7	7.8
17	6.7	7.8
18	6.7	7.8
19	6.8	7.9
20	6.8	7.9
21	6.9	7.9
22	7	8
23	7	8
24	7	8.2
25	7.1	8.7

U.S DEPARTMENT OFAGRICULTURE AGRICULTURAL MARKETING SERVICE COMMODITIES SCIENTIFIC SUPPORT DIVISION BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY WHEAT (Triticum Spp.)

NAME OF APPLICANT(S)	FOR OFFICIAL USE ONLY
Agripro Seeds, Inc.	
ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code)	PVPO NUMBER 9500308
6700 Antioch P.O. Box 2962	VARIETY NAME OR TEMPORARY DESIGNATION
Shawnee Mission, KS 66201-1362	ELKHART
lace the appropriate number that describes the varietal character of this vari lace a zero in the first box (e.g or) when number is either	iety in the boxes below. 99 or less or 9 or less.
KIND:	
1 = COMMON 2 = DURUM 3 = CLUB 4 = OTHER (SPECIA	FY)
VERNALIZATION:	·
1 = SPRING 2 = WINTER 3 = 0THER (SPECIFY)	
COLEOPTILE ANTHOCYANIN:	
1 = ABSENT 2 = PRESENT	· .
JUVENILE PLANT GROWTH:	
1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT	
PLANT COLOR (boot stage):	
1 = YELLOW-GREEN 2 = GREEN 3 = BLUE-GREEN	
FLAG LEAF (boot stage):	
1 = ERECT 2 = RECURVED	
2 1 = NOT TWISTED 2 = TWISTED	
EAR EMERGENCE:	
O 1 Caldwell Caldw	
 -	,
NUMBER OF DAYS LATER THAN ANTHER COLOR:	*
1 = YELLOW 2 = PURPLE	1
PLANT HEIGHT (from soil to top of head, excluding awns)	tagual to Clemens (CDUU)
cm. TALLER THAN	*equal to Clemens (SRWW)
cm. SHORTER THAN	*

* Relative to a PVP-approved commercial variety grown in the same trial.

1 = NARROW (ca. 3mm) 2 = MEDIUM (ca. 3.5mm) 3 = WIDE (ca. 4mm)

13. 8	EED:	НАРЕ		9500308	3
		1 = OVATE 2 = OVAL 3 = ELLIPTI	CAL		
	В. С	CHEEK			
	1	1 = ROUNDED 2 = ANGULAR			
		RUSH			
	2	1 = SHORT 2 = MEDIUM 3 = LONG	;		
		1 = NOT COLLARED 2 = COLLARED			
		REASE			
		1 = WIDTH 60% OR LESS OF KERNEL 2 = WIDTH 80% OR LESS OF KERNEL 3 = WIDTH NEARLY AS WIDE AS KERNEI	.		
	1	1 = DEPTH 20% OR LESS OF KERNEL 2 = DEPTH 35% OR LESS OF KERNEL 3 = DEPTH 50% OR LESS OF KERNEL			
	E. CO	OLOR			
	3	1 = WHITE 2 = AMBER 3 = RED 4 =	OTHER (s	(specify)	
	F. TE	XTURE			
	2	1 = HARD 2 = SOFT			
	G. PH	IENOL REACTION (see instructions)	•		
		1 = IVORY 2 = FAWN 4 = DARK BROWN 5 = BLACK	3 = LIG	GHT BROWN	
14. DE	SEASE:	$(\theta = NOT TESTED;$ 1 = SUSCEPTIBLE;	2 = RES	SISTANT) 3=moderate resistance 4=moderate sus	sc
	3	STEM RUST (Res. genes)	3	LEAF RUST (Res. genes)	
	0	STRIPE RUST (Res. genes)	0	LOOSE SMUT (Res. genes)	
	3	MILDEW (Res. genes)	0	BUNT (Res. genes)	+
	3	Septoria nodorum (Res. genes)	3	Septoria tritici (Res. genes)	:
	0	BYDV (Res. genes)	0	WSMV (Res. genes)	
	3	SBMV (Res. genes)	0	SSMV (Res. genes)	
		OTHER			

bit C (Wheat)	Page 4	A STATE OF THE STA		
INSECT:	(0 = NOT TESTED; 1 = SUSCEPTIBLE	E; 2 = RESISTANT)		9500308
2	HESSIAN FLY (Res. genes) H6	,		
0	STEM SAWFLY (Res. genes)	1 (14.4) 1 (14.4) 1 (14.4)	. "	
0	CEREAL LEAF BEETLE (Res. genes)	No construction of the last of		
0	APHIDS (Res. genes)		· · · · · · · · · · · · · · · · · · ·	
0	GREENBUG (Res. genes)	· · · · · · · · · · · · · · · · · · ·		
0	RUSSIAN APHID (Res. genes)		· 	

OTHER (specify)

EXHIBIT D.

ADDITIONAL DESCRIPTION OF ELKHART

Elkhart is a soft red winter wheat bred and developed by Agripro Seeds, Inc. It was derived from the cross Auburn/GR855. Elkhart is a high yielding, strong strawed, medium height variety with early maturity. Elkhart provides moderate resistance to Septoria tritici, septoria nodorum, leaf rust, stem rust, powdery mildew and Soilborne mosaic virus.

Juvenile growth habit is semierect. Plant color at boot stage is green. The flag leaf is erect and twisted. Auricle hairs and auricle anthocyanin are present. Waxy bloom is present on the stem, flag leaf sheath and head. The head is tapering, awned and middense. Glumes are short and narrow with oblique shoulders and acuminate beaks. Seed shape is ovate with rounded cheeks.

Elkhart is well adapted to the states from Missouri to eastern Pennsylvania and from Tennessee to Michigan.

EXHIBIT E.

STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

The variety for which Plant Variety Protection is hereby sought was developed by Dr. Koy Miskin, an employee of Agripro Seeds, Inc. By agreement between employees and Agripro Seeds, Inc., all rights to any invention, discovery, or developement made by the employee while employed by Agripo Seeds, Inc., were assigned to Agripro Seeds, Inc., with no rights of any kind pertaining to 'Elkhart' being retained by the employees.

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EXHIBIT F.

QUALITY AND AGRONOMIC DATA

Quality Da	ta .	•	•	•	•	•	•	•	•	. •	. •	•	٠.	•	•	•	•	•	•	•	1.		
Agronomic	Data		•	•									_			_				_	2.	thru	6

1994 HESSIAN FLY DATA from the USDA lab. at Purdue University

	Biotype GP	Biotype B	Biotype C	Biotype D	Biotype E	Biotype L	Known
Entry	R/S	R/S	R/S	R/S	R/S	R/S	Genes
90M*7546	12-2	7-4	0-17	0-20	11-0	0-12	
Caldwell	10-0	15-0	0-14	0-23	12-0	0-12	H6
Cardinal	9-2	0-15	10-0	0-15	14-0	0-11	H3
Pioneer 2	0-12	0-13	0-11	0-18	0-12	0-13	. 0
Auburn (M	Res.	Res.	Susc.	Susc.	Res.	Susc.	H6

90M*7546 cames the H6 gene similar to its maternal parent Aubum H6 is resistant to biotypes GP, A, B, E, H, I, J, M.

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RO WHEAT	KIINIER
ACRIER	8
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SCORES	MILL BAKE		7-B	6-A	16-F	10-B	5. A	8-B	8-B	11-F	₹ ¢	4	\$ \$;	8 P.B			4 P	9	7-P	/-B	₽-9	7-B	7-A	8-A	P.	4 9	
			₽-9	6-A	Ą	7-B	7-B	Α̈́	9-B	d-B	11-B	15	12	ļ	7-3	İ		4 ·	∯ :	₩.	۲,	¥ o	Ą	12-B	12-B	13-B	P. P.	
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	10C-CODE	WN-93132	UA-96116	SM-96116	JI-91123	GV-91130	BK-91130	FO-91216	CI-91216	F0_81513	FK 81513	TV 61305	C7CT0-VII	AVPRACE			WN-93102	JI-91104	GV-91104	BK-91104	FO-91204	CI91204	FO-91104	BK-91104	PK-61304	- C-	AVERACE	-
VARIETY	OR LINE	ELKHART	ELKHART	ELKHART	ELKHART	ELKHART	ELKHART	ELKHART	ET KHART	ELKHART	ELKHART	EJ KHART					CALDWELL	CALDWELL	CALDWELL	CALDMELL	CALDMELL	CALDMELL	CALDMELL	CALDWELL	CALDWELL			
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	YEAR	\$	<i>1</i> 5	\$	\$	೫	8	35	25	75	ಕ	8	2			ļ	\$											

8-9=UNACCEPTABLE 6-7-QUESTIONABLE 5=ACCEPTABLE 3-4=G00D RATINGS: 1-2=EXCELLENT